AMENDMENTS TO THE CLAIMS

1-29. (Canceled).

30. (Currently amended) A method of forming a polarization hologram, comprising:

applying an organic polymer material to a surface of a ~~transparent~~ substrate;

drying said substrate and removing said organic polymer material from said substrate;

heating and stretching said organic polymer material to form a uni-directionally stretched birefringence layer;

attaching said uni-directionally stretched birefringence layer onto [[said]] a transparent substrate with an adhesive layer;

patterning said uni-directionally stretched birefringence layer by forming a photoresist and mask on said birefringence layer, wherein said step of patterning forms a uni-directionally stretched birefringence layer with a periodic grating pattern; and

forming an isotropic overcoat layer to enclose said birefringence layer;

wherein said uni-directionally stretched birefringence layer with a periodic grating pattern has different refractive indexes for two orthogonal polarizing directions of a beam, and wherein the polarization hologram diffracts the beam in predetermined diffracting directions depending on the wavelength and polarizing directions of the beam.

31. (Canceled)

32. (Previously presented) The method of claim 30, wherein said organic polymer material is selected from the group consisting of polycarbonate, polyvinylalcohol, polymethylmethacrylate, polystyrene, polysulfone, polyethylsulfone and polyimide.

33. (Previously presented) The method of claim 30, wherein the birefringence layer of the polarization hologram is configured with a heated and stretched polyimide film.

34. (Previously presented) The method of claim 33, wherein said polyimide film is prepared by applying a polyamide acid solution with a dimethylalcohol solvent to said substrate.

35. (Previously presented) The method of claim 30, wherein said heating is performed at a temperature of 350°C.

36. (Previously presented) The method of claim 30, wherein said stretching of said organic polymer material comprises stretching said organic polymer material in one direction.

37. (Previously presented) The method of claim 36, wherein a refractive index for said organic polymer material in said one direction of stretching is about 1.62.

38. (Previously presented) The method of claim 36, wherein the refractive index for said organic polymer material in a direction perpendicular to said one direction of stretching is about 1.49.

39. (Previously presented) The method of claim 38, wherein the difference between the refractive index for said organic polymer material stretched in said one direction and said direction perpendicular to said one direction is 0.13.

40. (Previously presented) The method of claim 30, wherein the polarization hologram is configured to substantially satisfy the following requirements

$(np-n1)h=mL$

$(ns-n1)h=(m\pm\frac{1}{2})L$

where np is a refractive index of the birefringence layer for a p-polarized light of the beam, ns is a refractive index of the birefringence layer for an s-polarized light of the beam, n1 is a refractive index of an isotropic overcoat layer, h is a depth of the periodic grating pattern, L is a wavelength of the beam, and m is an integer (m=0, ±1, ±2, ...).

41. (Previously presented) The method of claim 30, wherein the polarization hologram is configured to substantially satisfy the following requirements

$(np-n1)h= (m\pm\frac{1}{2})L$

$(ns-n1)h= mL$

where np is a refractive index of the birefringence layer for a p-polarized light of the beam, ns is a refractive index of the birefringence layer for an s-polarized light of the beam, n1 is a refractive index of an isotropic overcoat layer, h is a depth of the periodic grating pattern, L is a wavelength of the beam, and m is an integer (m=0, ±1, ±2, ...).

42. (Previously presented) The method of claim 30, wherein said applying step includes pin coating.

43. (Previously presented) A polarization hologram comprising:

a substantially planar substrate; and

a uni-directionally stretched birefringence layer with a periodic grating pattern comprising organic polymer material affixed to said unpatterned substrate, the uni-directionally stretched birefringence layer having different refractive indexes for two orthogonal polarizing directions of a beam, wherein the depth of said periodic grating pattern is essentially equal to a thickness of said uni-directionally stretched birefringence layer, and wherein the polarization hologram diffracts the beam in predetermined diffracting directions depending on the wavelength and polarizing directions of the beam.

44. (Previously presented) The polarization hologram of claim 43, further comprising an isotropic overcoat layer provided to enclose the birefringence layer therein.

45. (Canceled).

46. (Previously presented) The polarization hologram of claim 44, wherein said polarization hologram comprises a second transparent substrate provided on the isotropic overcoat layer to cover the birefringence layer, and the isotropic overcoat layer being an isotropic resin adhesion layer, and the second transparent substrate being fixed to the birefringence layer by using the isotropic resin adhesion layer.

47. (Canceled).

48. (Previously presented) A method of forming a polarization hologram, comprising:

providing a substrate;

forming a uni-directionally stretched organic polymer layer over said substrate;

forming a photoresist mask on said uni-directionally stretched organic polymer layer;

forming a periodic grating pattern on said uni-directionally stretched organic polymer layer with said photoresist mask so that a top surface portion of the substrate is not covered by the uni-directionally stretched organic polymer layer;

removing said photoresist mask; and

forming an isotropic overcoat over said patterned uni-directionally stretched organic polymer layer and directly contacting the top substrate, wherein the polarization hologram is configured to substantially satisfy the following requirements:

(np-n1)h=mL

(ns-n1)h=(m±½)L

where np is a refractive index of the birefringence layer for a p-polarized light of a beam, ns is a refractive index of the birefringence layer for an s-polarized light of the beam, n1 is a refractive index of an isotropic overcoat layer, h is a depth of the periodic grating pattern, L is a wavelength of the beam, and m is an integer (m=0, ±1, ±2, ...).

49. (Previously presented) A method of forming a polarization hologram, comprising:

providing a substrate;

forming a uni-directionally stretched polyimide layer over said substrate;

forming a photoresist mask on said uni-directionally stretched polyimide layer;

forming a periodic grating pattern on said uni-directionally stretched polyimide layer with said photoresist mask so that a top surface portion of the substrate is not covered by the uni-directionally stretched organic polyimide;

removing said photoresist mask; and

forming an isotropic overcoat over said patterned uni-directionally stretched layer and directly contacting the top substrate; and

wherein the periodic grating pattern has different refractive indices for two orthogonal polarization directions, to thereby diffract a beam in predetermined diffraction directions depending on the polarization direction of the beam.

50. (New) The method of claim 30, wherein said uni-directionally stretched birefringence layer is patterned before being attaching said uni-directionally stretched birefringence layer onto said transparent substrate.

51. (New) The method of claim 30, wherein said photoresist and mask are formed on said birefringence layer before being attaching said uni-directionally stretched birefringence layer onto said transparent substrate.

52. (New) The method of claim 30, wherein said substrate and said transparent substrate are the same substrate.